Research Notes

Program Steering Committee (PSC): Environmental

May 2014

Title: Tire/Pavement Noise Research Consortium; Pooled Fund TPF-5(135)

Task Number: 1579
Start Date: 7/1/2007
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Product Category: New or improved business practice, procedure, or process.

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TITLE:
Tire/Pavement Noise Research Consortium; Pooled Fund TPF-5(135)

This project is developing safe and durable low noise pavements to reduce noise impacts in a cost effective manner.

WHAT IS THE NEED?

Minimizing the impact of traffic noise on the public is a priority for state highway agencies and the FHWA. As tire-pavement noise is the single largest contributor to traffic noise on many highways, increased utilization of low-noise pavement surfaces may reduce overall traffic noise or reduce the need for expensive traditional noise mitigation measures. Developing low-noise pavement surfaces that are both durable and safe is of high interest to both state highway agencies and FHWA. Utilization of low-noise surfaces may also provide a noise reduction alternative where traditional noise mitigation measures such as walls and berms are not a viable solution. Examples of problematic areas include many bridges/structures, areas with unstable slopes, locations near water bodies/wetlands, dike/levee/floodplain sectors, where utilities near roadways cannot be moved, and in heavily urbanized areas within a built environment.

Research into these low-noise pavement treatments and materials is beginning in earnest in a variety of states. Coordinated sharing of research development, evaluation techniques, and study results is critical to reduce overall costs for key research pieces, reduce redundancy of effort, focus funding in the most needed areas, and find viable solutions that can be implemented expeditiously for the highest number of states. In short, a collaborative effort can create greater benefits than the independent efforts of individual states.

WHAT ARE WE DOING?

The objectives of this research are to: provide a forum for states to discuss tire/pavement noise issues and develop a proposed research plan; and, pool resources and efforts of multiple state agencies and industry to perform tire/pavement noise research in a consistent manner, avoid duplication, and share data.

To fulfill the stated objectives the project includes: a synthesis of global practice in regards to utilizing pavement technology for decreasing tire/pavement noise; a synthesis on the cost/benefits of using low-noise pavements; a report for the general public information regarding noise reduction; developing a baseline for quieter pavement discussion (e.g. definitions, list of acronyms, etc.); and, developing guidelines for best practices in measuring and evaluating noise benefits and decreases over the wearing life of the roadway surface.

WHAT IS OUR GOAL?

The goal is to incorporate pavement type into the FHWA Traffic Noise Model. Additionally, guidelines for noise studies and a forum for information exchange will be developed

WHAT IS THE BENEFIT?

Caltrans will benefit from this research because nationwide quiet pavement research will be coordinated amongst the participating states and duplication will be avoided. Thus, Caltrans will be able to leverage its funding. This work will help result quieter roadways and sustainable communities while saving money on sound walls.

WHAT IS THE PROGRESS TO DATE?

Much of the scope of work has been completed and the contract is scheduled to be completed on Dec. 31, 2014. The cost-benefit workshop was held in January 2014 at the annual Transportation Research Board meeting. Noise measuring protocols and systems have been developed by this TPF. The results of this workshop will play into the roadmap workshop, which has been pushed back into mid-2014. The cost-benefit workshop was hosted by the National Academy of Engineering and was formed based in part on a 2010 report that identifies quieter pavement as a strategy for lowering noise impacts.